

Do we facilitate the scientific process and the development of dietary guidance when findings from single studies are publicized? An American Society for Nutritional Sciences Controversy Session Report¹⁻³

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ABSTRACT This American Society for Nutritional Sciences Controversy Session presented at the 1997 Experimental Biology meeting considered whether publicity of findings from single studies facilitates or hampers the scientific process and the development of scientifically sound dietary guidance. In a 1995 survey, 78% of primary household shoppers believed it “very likely” or “somewhat likely” that in the next 5 y experts would have a completely different idea about which foods were healthy and which were not. This skepticism is fueled by the media’s emphasis on reporting new and often controversial findings about food and nutrition. Media efforts are reinforced by the fact that some scientific journals regularly publicize newly published research findings. As a consequence, journalists frequently mediate scientific debate in a public forum—debate that previously was conducted among knowledgeable peers. Tight deadlines often make it difficult for reporters to thoroughly investigate findings publicized in press releases. Headlines can make results from single studies appear important, even when results are inconclusive. Finally, scientists and public policymakers have limited opportunity for making timely comments in response to an issue reported in the media. Nevertheless, the public has a right to be informed about health-related research findings to help them make decisions about their diets. The media are a valuable resource for educating the public and maintaining public interest in the importance of diet in overall health status. Nutrition scientists should be more involved in helping the media accurately convey diet and health messages. *Am J Clin Nutr* 1999;70:802–5.

KEY WORDS Dietary guidance, publicity, science journalism, communicating research, media, nutrition

INTRODUCTION

As the primary source of nutrition information for consumers in the United States (1, 2), the media have an unparalleled influence on attitudes and knowledge about diet and nutrition in this country. The current skepticism consumers have toward the media and news, however, gives cause for evaluation of this influence because of its effect on the credibility of nutrition science and nutrition scientists.

According to a 1997 Roper Center Survey (3), Americans distrust the news, finding it too sensationalized, too manipulated by special interests, too biased, and too reliant on quotes from unnamed sources. Likewise, surveys suggest that increasing consumer confusion about diet and health, derived in part from

inconsistent and out-of-context advice reported in the media (4), is generating public distrust of dietary guidance. In a recent survey, 78% of primary household shoppers believed it “very likely” or “somewhat likely” that in the next 5 y experts would have a completely different idea about which foods were healthy and which were not (5).

Journalists themselves are increasingly aware of and concerned about public mistrust of the news. Some journalists decry the blending of entertainment with news (6), and others have specifically addressed public confusion over science reporting (7). Major media have featured articles that attempt to help readers understand how studies are hyped, how news releases may stretch the truth, and how facts can be manipulated (8–10).

As the source of much of the nutrition information featured in the media, nutrition scientists also need to examine their roles and responsibilities in providing nutrition news. In particular, practices regarding the reporting of the findings of single studies, which may appear to conflict with the larger body of knowledge on a subject or which may be the first published finding on the subject, need to be scrutinized. This commentary examines whether the scientific process and the development of dietary guidance for the public are facilitated when new findings from single studies are publicized, as debated during an American Society for Nutritional Sciences Controversy Session during Experimental Biology ‘97 in New Orleans.

BENEFITS OF PUBLICIZING SINGLE STUDIES

Publicizing single studies serves several important purposes. Among the most important is that the public wants to know

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TABLE 1Additional actions recommended to improve reporting on nutrition¹

Improve training for scientists

- Encourage schools and professional societies to devote resources to train students, members, and new scientists to become better writers and to more effectively work with the media.
- Conduct media training sessions through ASNS at Experimental Biology.
- Conduct media training sessions for nutritionists involved in public education, eg, cooperative extension.

Collaborate with the media to improve reporting

- Encourage the ASNS/ASCN PIC to write to editors of major scientific and medical journals to reinforce that study results should be put into context when published.
- Set up a program of scientist-journalist exchanges. Go to schools of journalism or annual meetings of journalists and broadcasters to discuss how to communicate science to the public.
- Have professional nutrition associations work with schools of journalism and journalism Web sites to make information more accessible to journalists.
- Work with the media fellowship program of the Council for Advancement and Support of Education to provide in-depth training in nutrition for science writers. Media fellows spend a week at an educational institution learning about a particular topic (eg, nutrition).

Improve processes for disseminating scientific findings

- Reconsider whether professional societies should promote findings reported at annual meetings when findings have not undergone peer review. If such findings are to be publicized, arrange for the information to be previewed by a group of peer scientists.
- Encourage publicity of scientific consensus statements and position papers (eg, monthly press releases issued by ASNS PIC). Ideas on how to develop consensus statements should be communicated to the ASNS executive committee and other professional societies.
- Encourage scientists to consider journal publicity policies before submitting manuscripts with controversial findings.
- Encourage ASNS and ASCN to maintain an up-to-date list of experts who are willing to respond to media inquiries and to distribute the list to all ASNS and ASCN members.
- Invite scientists in ASNS to contact the International Food Information Council and offer to respond to media inquiries.

Help consumers filter "news" about science

- Consider whether ASNS and ASCN should maintain a Web site registry of other Web sites that present responsible nutrition information.
- Distinguish between research findings based on observational studies and randomized clinical trials when communicating with the media and public.
- Educate the public about the evolutionary (compared with revolutionary) process of science, possibly as part of press releases issued by journals and the ASNS PIC.

¹Recommendations based on comments from the audience (and panel speakers) at an American Society for Nutritional Sciences (ASNS) controversy session in April 1997. Other recommendations are given in the text. ASCN, American Society for Clinical Nutrition; PIC, Public Information Committee.

about links between nutrition and health. Often, the public presses to know the scientist's best guess, even if not conclusively proven. In addition, because much research is funded by public entities such as the National Institutes of Health and by foundations, it can be argued that the public has a right to know the results of this research. Furthermore, freedom of the press is a fundamental tenet of democracy. Once a study is published in the scientific press, the consumer media have the right to cover it, interpret it, and disseminate it.

Such coverage has benefited consumers. The communication of individual studies has led to greater public awareness of diet and health, helping to increase public receptivity to lifestyle changes. As awareness of the potential effect of nutrition on health grows, the public demands information immediately. The public does not want to wait years until research findings conclusively define relations between specific diseases and diet. If insights derived from single studies are presented prudently and accurately within the context of accepted public health guidance, the public can benefit as nutrition knowledge expands.

It is also important to note that given the public demand for nutrition information, nutrition news will continue to be communicated. Who should be the communicator: popular books and reports authored by persons without training in nutrition, or journalists who talk at length with individual scientists to appreciate the intricacies of the subject? It is rare that the scientist writes the report for the media; rather, the scientist works with an edi-

tor or journalist vis-à-vis (as a counterpart) and it is then the editor's or journalist's responsibility to explain and simplify the scientific concepts or material. Although it can be argued that governmental agencies, professional organizations, or other legitimate groups should be charged with nutrition communication, the reality is that the media in cooperation with individual nutrition scientists may often be the primary sources of insight and perspective on nutrition issues.

One of the most important advantages to publicity about nutrition research findings is that the publicity leads to excitement about particular areas of research and subsequently may increase the amount of public and private dollars available for research. For example, current excitement about breast cancer research has led to more abundant funding for this type of research. The public became excited about prevention, diagnosis, and treatment opportunities, which spurred Congress to make money available to research the issue. This type of excitement can lead to funding through private institutions as well.

From the point of view of nutrition scientists, the publication of single studies in the scientific literature can be thought of as a fundamental obligation of scientists. Single studies represent the lifeblood of science, the fountain of discovery on which science is built. By publishing single studies, we test hypotheses, generate new ones, and propel research forward. As new results emerge, they must be replicated and refined. New ideas follow and lead to further studies. However, publishing the results of

studies in the scientific literature is not equivalent to publicizing them through the public media.

DRAWBACKS OF PUBLICIZING SINGLE STUDIES

Although there are benefits to publicizing the results of single studies to the general public, there are also significant risks to the processes of developing and communicating dietary guidance. Science, on which dietary guidance is based, is evolutionary, not revolutionary. New research results emerge almost daily and fuel the dissemination of findings through various channels, including newspapers, magazines, and television. Single studies represent just one link in the chain of scientific understanding and are frequently not conclusive; for example, they may be in conflict with the current state of knowledge, too small to generate stable results contrary to the consensus of opinion, or not generalizable. Indeed, although the findings of single studies may represent truths in themselves, the generalizable truth is often found in combined analyses and reviews. Findings from single studies are often just one of many pieces in an intricate puzzle. The true picture begins to emerge only as the many pieces are carefully put together.

Although scientists generally understand the limitations of single studies, consumers are less likely to do so. The “significant scientific agreement” standard is the foundation for the formulation of many federal food and nutrition policies. Yet the standard itself has been subject to a wide range of interpretation. The National Policy Dialogue on Food, Nutrition, and Health (11) attempted to explain the complexities of the standard by using a flowchart, along with a recommendation for continued “objective, flexible and responsive” use in the Food and Drug Administration approval process for health claims on food products.

Meta-analysis and pooled analysis are approaches sometimes used to assess significant scientific agreement. Meta-analysis statistically integrates the results of individual studies, whereas pooled analysis integrates the data of individual studies. These approaches are increasingly being used as evidence-based medicine encourages physicians to rely more on current research and systematic, comprehensive reviews in making clinical decisions (12, 13). Other health disciplines are also moving toward evidence-based practice (14, 15). Nutrition scientists and epidemiologists are using these integrative analytic techniques to provide more meaningful and conclusive summaries as the basis for dietary guidance. Independent study findings may be misleading alone, especially if sample sizes are small, substantial bias exists, numerous confounders are uncontrolled, or exposure is not measured reliably. If there is a divergence of opinion among researchers, integrative analyses and reviews help researchers determine areas needing further examination and work.

Although there is a tendency for the scientific community to blame the media for contradictory and often sensationalized stories, print and broadcast media deadlines sometimes demand that stories be completed whether or not the author or authors of a scientific piece are available for comment. Also, we must look at other sources that add to consumer confusion, including ourselves. Scientific journals, professional societies, universities, the food industry, and, most importantly, we scientists contribute to the problem. The game of grantsmanship and professional ambition leads some scientists to present their findings as exciting or even revolutionary, while downplaying the consistency of published nutrition research. Enthusiasm or ego may override objectivity. As pointed out earlier, an overwhelming majority of

adults (78% of those surveyed) feel there will be fundamental changes in dietary guidance, even though dietary advice has been remarkably consistent in the past 20 y (5).

Furthermore, the formats in which findings are presented in the popular media are overly simplistic. Foods are often portrayed as being good or bad for health. If a scientist seeks to qualify statements with too many caveats, it is sometimes taken by the media or the public as a sign of waffling. In particular, single-study information about food and nutrition increases consumer confusion if presented without enough context. Consumers need to know not only what to eat (or what not to eat), but how much, how often, and to whom the advice applies. Yet, <10% of media stories mention these 3 contextual elements (4).

In the same vein, by commenting on a single study without the benefit of retrospection and discussion with others, scientists relinquish their roles as mediators of debates about scientific matters. In essence, they turn the responsibility over to the media. Professional society and research conference meetings are more appropriate forums for debate about new findings than the popular press. At these meetings, an issue can be debated among scientists who understand the historical and scientific context of new findings and, generally, some of the motivation or bias behind data interpretation (16).

In addition to the erosion of consumers' confidence in dietary advice, publicity about results from single studies could, ironically, lead to the loss of research support. When results from single studies are presented in a compelling, conclusive manner, they can discourage continued research, even though the existing body of science is incomplete and insufficient for dietary guidance.

HOW INDIVIDUAL NUTRITION SCIENTISTS CAN HELP THE MEDIA DO A BETTER JOB REPORTING SINGLE STUDIES

Nutrition scientists can work individually and in collaboration with others to ensure the proper publicity of single studies to allow the public and the profession to gain the benefits of emerging research.

What study authors can do

Individual scientists should become more aware of the potential for improper reporting of research results in the popular press throughout the multistep process of publishing and publicizing their studies. Not just their own personal credibility but that of the entire discipline is at stake. Guidelines for communicating emerging science on nutrition, food safety, and health were developed recently to help scientists ensure that sound science is the basis for reports on single studies and that improved public understanding of nutrition and health is the result (17).

Study authors can start to take responsibility for accurate reporting beginning with the selection of the journal in which their study is to be published. Some journals regularly issue press releases for promotional purposes (18, 19). Reputable promotion practices include carefully written and researched releases that provide balanced discussion of study results. Nutrition scientists should review any and all press releases written by journal editors or staff and institutional or university public information officers. Ideally, the introduction and discussion sections of a paper should be written so that excerpts can be used without extensive change by the popular press, which facilitates accurate reporting. In some cases, however, findings may be so

new and surprising that wide dissemination before confirmation in further work would be inappropriate. In this instance, the author may choose a journal that does not aggressively solicit media coverage.

In describing the findings of studies, either within publications or press releases or when responding to questions from journalists, authors also have an obligation to put their overall findings into perspective with a balanced interpretation of their results. All caveats should be included in the published study to help journalists and the public understand the limitations of a piece of research. For example, when dealing with an *in vitro* study or an animal study that assumes a particular model explains human carcinogenesis, we should emphasize that our results were generated in a particular model system. If we are doing observational epidemiology, we should point that out and say that we may not be able to fully control for effects that may be linked to lifestyles correlated with diet. Scientists should also point out whether other scientific approaches corroborate the new findings.

In areas that have public health implications, scientists should comment on whether and how new findings affect public health recommendations. They should also distinguish between science that may be convincing enough for some individuals to make personal decisions and science conclusive enough to affect public policy and national dietary guidance. Likewise, if there are no public health implications or if there is only a limited group to whom the new information applies, that should be emphasized.

Other actions recommended to improve reporting on food and nutrition

Additional actions recommended at the controversy session by speakers and the audience to improve reporting on food and nutrition are provided in **Table 1**. These include specific suggestions for training scientists to more effectively communicate scientific findings to the media and for collaborating with the media to improve reporting. In addition, suggestions are provided to improve the overall process of disseminating scientific findings.

Additionally, scientists can help the media begin to approach nutrition reporting differently. Nutrition scientists can mentor the media by not just responding to questions, but instead helping journalists better realize the implications of what they choose to report and how they do it. When a reporter calls to inquire about the results of a single study, the scientist's greatest contribution can be helping the reporter determine the emphasis and perspective to put on the findings, and, in some cases, persuading the journalist that there is not a meaningful news story to cover. Furthermore, when asked to be a second reference on research published by others, a scientist should make sure that the reporter is not using his or her interview to create controversy where significant scientific agreement exists. Other tips for scientists to use in managing how science is reported by the media

are included in the publication *Improving Public Understanding: Guidelines for Communicating Emerging Science on Nutrition, Food Safety and Health* (17). 

REFERENCES

1. American Dietetic Association. The American Dietetic Association 1997 nutrition trends survey. Executive summary. Chicago: American Dietetic Association, 1997.
2. Roper Starch. Americans talk about science and medical news. National Health Council report. Washington, DC: National Health Council, 1997.
3. Institute for Social Inquiry/Roper Center, University of Connecticut. Attitudes about the news media. Washington, DC: Freedom Forum Media Studies Center and the Newseum, 1997.
4. International Food Information Council and Center for Media and Public Affairs. Food for thought II. Reporting of diet, nutrition and food safety. Washington, DC: International Food Information Council and Center for Media and Public Affairs, 1998.
5. Food Marketing Institute and Prevention Magazine. Shopping for health 1997: balancing convenience, nutrition and taste. Washington, DC: Food Marketing Institute and Prevention Magazine, 1997.
6. Cronkite W. A reporter's life. New York: Random House, 1996.
7. Hartz J, Chappell R. Worlds apart: how the distance between science and journalism threatens America's future. Nashville, TN: First Amendment Center, Vanderbilt University and Freedom Forum Media Studies Center. (Publication 98-F02, 9/21/98.)
8. Altman LK. Promises of miracles: news releases go where journals fear to tread. *New York Times* 1995 Jan 10:C3.
9. Chase M. How to put hyped study results under a microscope. *Wall Street Journal* 1995 Jan 16:B-1.
10. Williams L. Stalking the elusive healthy diet. In scientific studies, seeking the truth in a vast gray area. *New York Times* 1995 Oct 11:C1, C6.
11. The Keystone National Policy Dialogue on Food, Nutrition, and Health: final report. Washington, DC: The Keystone Center, 1996.
12. Hunt M. How science takes stock: the story of meta analysis. New York: Russell Sage Foundation, 1997.
13. Sackett DL, Rosenberg WMC, Gray JAM, Haynes RB, Richardson WS. Evidence based medicine: what it is and what it isn't. *BMJ* 1996;312:71-2.
14. Porter C, Matel JLS. Are we making decisions based on evidence? *J Am Diet Assoc* 1998;98:404-7.
15. Hicks C, Hennessy D. Mixed messages in nursing research: their contribution to the persisting hiatus between evidence and practice. *J Adv Nurs* 1997;25:595-601.
16. King RT. Medical journals rarely disclose researchers' ties. *Wall Street Journal* 1999 Feb 2:B1, B4.
17. Improving public understanding: guidelines for communicating emerging science on nutrition, food safety and health. *J Natl Cancer Inst* 1998;90:194-9.
18. DeSemir V, Ribas C, Revuelta G. Press releases of science journal articles and subsequent newspaper stories on the same topic. *JAMA* 1998;280:294-5.
19. Entwistle V. Reporting research in medical journals and newspapers. *BMJ* 1995;310:920-3.